

ABSTRACT OF THE DISCLOSURE

In an air-fuel ratio control system, a gain K_h is adaptively determined on the basis of a value z obtained by multiplying a target fuel amount difference value Δy_m (derivative value of a target fuel amount) by an error e between a target excess fuel ratio (target ϕ) and an actual excess fuel ratio (actual ϕ) detected by an air-fuel ratio sensor. A value obtained by multiplying the target fuel amount difference value Δy_m by the gain K_h is determined as an F/F corrected value u_{cmp} . In this case, when the error e between the target ϕ and the actual ϕ is determined in consideration of the fact that a controlled system has dead time d , a target ϕ_d at the point in time going back in the past by the amount of the dead time d is used to obtain error $e = \text{target } \phi_d - \text{actual } \phi$.